Other State Association and Component County Society News.—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 86.

EDITORIAL COMMENT†

ANTITOXIN ACTION OF IRON SALTS

The success of iron in the treatment of certain types of anemia has stimulated the hope that iron salts might be equally effective in increasing the normal resistance to bacterial infections. That this hope may eventually be realized is currently alleged by Hettche[1] of the Hygienic Institute, University of Munich, who found that, with proper subcutaneous doses of iron-manganese mixtures, laboratory animals may be rendered refractory to multiple lethal doses of at least three specific bacterial toxins.

The first definite immunological success of iron therapy was reported about three years ago by Wohlfeil,[2] of the Robert Koch Institute, Berlin. He found that subcutaneous injections of ferro-ammonium-sulphate often protect guinea pigs against minimal lethal doses of diphtheria toxin, and that this protective action can be increased by the simultaneous injection of magnesium or copper salts, which he pictured acting as iron "activators."

Hettche, and his coworkers,[3] have not only confirmed this finding, but have extended the tests to include other animal species and to other bacterial toxins. They find that iron therapy has prophylactic or antitoxic value if given parenterally, but is without antitoxic action if given by mouth. They emphasize the fact that optimum doses must be used, excessive doses being relatively ineffective. In their hands local toxic reactions may be reduced by selecting ascorbic acid salts of iron, *e. g.*, "ceferro." A mixture of "ceferro" and $MnSO_4$ allegedly has not only a prophylactic action against diphtheria, tetanus and botulinus toxins, but is also therapeutically effective, protecting laboratory animals against previous injections of multilethal doses of these toxins.

The German hygienists do not suggest the substitution of parenteral iron therapy for present methods of specific treatment or prophylaxis. They are of the opinion, however, that it will be found to be a valuable adjunct to such methods. Theoretically, the reported antitoxic action of iron salts is explained on the assumption that "activated" iron increases the respiratory enzymes in reticulo-endothelial cells, and in other cells responsible for specific antitoxin production.

Parenteral administration of iron is not viewed with favor by most American pharmacologists. Injection of small amounts of iron salts is very painful, and therapeutically ineffective in iron deficiency anemias; and larger doses produce severe toxic reactions. The assertion that "ceferro" is relatively nontoxic needs confirmation. The hypothetical increase in reticulo-endothelial enzymes would be of basic theoretical interest, if supported by adequate chemical evidence.

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BETTER CLINICAL RESULTS WITH THE SULFONAMIDE PREPARATIONS IN GONORRHEAL URETHRITIS

This article is primarily written for the purpose of decreasing the number of failures caused by sulfanilamide, and its related compounds, in the treatment of gonorrheal male urethritis.

When, how, and why to use a certain preparation of sulfanilamide is very important toward establishing a cure for gonococcal infections. Naturally, our first thought would be to choose a drug whose toxicity is so low and its therapeutic index so high that the patient can tolerate a complete course of treatment orally without any alarming systemic effects.

Consequently, the ideal chemotherapeutic agent would be one which can reduce the amount of urethral discharge, give a negative smear, and produce a clear urine in the first and second glass test. Should this particular chosen drug produce mild toxic systemic reactions, although it has benefited the local condition, the dose should be decreased to meet the patient's tolerance. If a physical breakdown occurs due to a serious complication, such as hemolytic anemia, agranulocytosis, or acute hepatitis, stop the drug immediately and depend entirely upon local treatment for a cure. Likewise, if a drug can be well tolerated systemically, and there is no improvement at the site of infection, the drug is useless and should be discontinued in favor of local treatment.

To be more specific, if a patient does not respond after one week's oral treatment with sulfanilamide, spare the patient's pocketbook and protect his defensive mechanism by discontinuing the drug. Use local treatment, as a mild silver protein preparation, for about two weeks and then resume oral treatment with a different brand of sulfonamide, as neoprontosil, sulfapyridine, uliron sodium, etc.

Usually the patient will respond to some degree on such a régime; should he not, however, show any improvement to a second course of a different oral preparation, begin to build up the patient's resistance to the gonococcus. This can be accomplished by mild local treatment and general systemic improvement with the vitamins, liver and iron preparations, good nutritious food, bland diet, and avoidance of extreme physical exertion.

In conclusion, one must bear in mind that even a procedure such as is outlined above will in some cases produce no results. Consequently, we must

† This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

1 Hettche, H. O., Zeitschr. f. Immunitätsforsch., 97:81, (Nov.), 1939.

2 Wohlfeil, T., Zentralb. f. Bakt., 139:27, 1937.

3 Hettsche, H. O., and Strassburger, H., Zeitschr. f. Immunitätsforsch., 97:109, (Dec.) 1939.